

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
COASTAL BAYS DATABASE
1993 DELAWARE AND MARYLAND BAYS
FISH COMMUNITY TRENDS

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog document

Coastal Bays Database
1993 Delaware and Maryland Coastal Bays
Fish Community Trends

1.2 Author of the Catalog entry

Melissa Hughes, OAO Corporation

1.3 Catalog revision date

18 December 1996

1.4 Data set name

FISHSPEC

1.5 Task Group

Mid-Atlantic Integration and Assessment (MAIA)

1.6 Data set identification code

206

1.7 Version

001

1.8 Requested Acknowledgment

If you plan to publish these data in any way, EPA requires a standard statement for work it has supported:

"Although the data described in this article have been funded wholly or in part by the U. S. Environmental Protection Agency through its EMAP-Estuaries Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

Dr. Frederick W. Kutz
U.S. Environmental Protection Agency - Region III

2.2. Investigation Participant-Sample Collection

Kent S. Price and Maryellen Timmons
University of Delaware

Janis C. Chaillou
Versar, Inc.

Cecelia C. Linder, James F. Casey,
Steve Doctor and Alan Wesche
Maryland Department of Natural Resources

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The Fish Community Trends data set reports fish abundance, composition and length data collected from seining at historical sites. These data were compared to historical data to determine whether perceived changes in the fish community could be related to spatial or temporal trends in water quality in Delaware and Maryland's coastal inland bays.

3.2 Keywords for the Data Set

Taxon abundance, fish community composition

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The objective of the Coastal Bays Joint Assessment was to assess the ecological condition of the Delaware and Maryland coastal bays, compare the current ecological condition of the bays with their historical condition and to evaluate indicators and sampling design elements that can be used to direct future monitoring activities in the system.

4.2 Data Set Objective

The objective of the FISHSPEC data set is to provide abundance and composition data on fish taxon collected at a sampling site.

4.3 Data Set Background Information

Studies in fresh water have generally shown that moderate eutrophication increases fish biomass, but may shift the composition of the fish community from desirable colder water fish to rough fish such as carp. The mechanism underlying the shift in community structure is poorly understood, but may be related to such factors as reduced grazing ability of predatory fish brought about by increased turbidity from increased amounts of phytoplankton. Almost no studies of this type have been conducted for estuarine fish.

4.4 Summary of Investigation Parameters

Fish were identified, counted and up to 25 individuals measured at a site.

5. DATA ACQUISITION AND SAMPLING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Conduct beach seine survey of juvenile fish in the Delaware and Maryland coastal bays consistent with historical surveys.

5.1.2 Sample Collection Methods Summary

Seines were deployed by holding one end on shore, towing the other end perpendicularly away from shore, walking parallel to shore for 50 yards, then sweeping the seine in a semicircular path towards the shore.

5.1.3 Sampling Start Date

July 1993

5.1.4 Sampling End Date

September 1993

5.1.5 Platform

Sampling was conducted from beaches.

5.1.6 Sampling Gear

Two kinds of seines were employed:

a 50-ft, nylon haul seine of 0.25-in mesh
with a 6-ft by 6-ft center bag

a 60-ft, nylon haul seine of 1-in stretch
mesh with a 6-ft by 6-ft center bag

5.1.7 Manufacturer of Sampling Equipment

NA

5.1.8 Key Variables

Abundance, species identification and individual length
were recorded at the time of sample collection.

5.1.9 Collection Method Calibration

The sampling gear did not require any calibration. It
required inspection for tears.

5.1.10 Sample Collection Quality Control

NA

5.1.11 Sample Collection Method Reference

1993 Delaware Fish Seine Study and Comparison to
Delaware and Maryland Historical Studies.
Contributing Authors: K.S. Price and M. Timmons
(University of Delaware, College of Marine Studies),
C.C. Linder, J.F. Casey, S. Doctor and A. Wesche
(Maryland Department of Natural Resources) and
J.C. Chaillou (Versar, Inc.) in:

Chaillou, J.C., S.B. Weisberg, F.W. Kutz, T.E. DeMoss,
L. Mangiaracina, R. Magnien, R. Eskin, J. Maxted, K. Price
and J.K. Summers. 1996. Assessment of the Ecological
Condition of the Delaware and Maryland Coastal Bays. U.S.
Environmental Protection Agency. Prepared by Versar, Inc.,
Columbia, MD.

5.1.12 Sample Collection Method Deviations

NA

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

Process seine contents to accurately identify

each fish to species, enumerate the contents by species and measure 25 individuals to the nearest mm.

5.2.2 Sample Processing Methods Summary

NA

5.2.3 Sample Processing Method Calibration

NA

5.2.4 Sample Processing Quality Control

NA

5.2.5 Sample Processing Method Reference

Chaillou, J.C., S.B. Weisberg, F.W. Kutz, T.E. DeMoss, L. Mangiaracina, R. Magnien, R. Eskin, J. Maxted, K. Price and J.K. Summers. 1996. Assessment of the Ecological Condition of the Delaware and Maryland Coastal Bays. U.S. Environmental Protection Agency. Prepared by Versar, Inc., Columbia, MD.

5.2.6 Sample Processing Method Deviations

NA

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Value

None

6.2 Data Manipulation Description

None

6.3 Data Manipulation Examples

None

7. DATA DESCRIPTION

7.1 Description of Parameters

#	Parameter Data			Parameter	
	SAS Name	Type	Len	Format	Label
1	MONTH	Char	3	\$3.	Month (JUL,AUG,SEP) of Data Collection
2	SITE	Char	7	7.	Site Number
3	SPECIES	Char	25	\$25.	Common Name of Taxon
4	ABUNDANC	Num	6	6.	No. of Individuals Collected of the Species

7.1.6 Precision to which values are reported

Abundance is recorded to the individual

7.1.7 Minimum Value in Data Set

ABUNDANC 1

7.1.7 Maximum Value in Data Set

ABUNDANC 5240

7.2 Data Record Example

7.2.1 Column Names for Example Records

MONTH SITE SPECIES ABUNDANC

7.2.2 Example Data Records

OBS	MONTH	SITE	SPECIES	ABUNDANC
1	AUG	STN_1	Atlantic silverside	9
2	AUG	STN_1	Bluegill	2
3	AUG	STN_1	Inland silverside	20
4	AUG	STN_1	Mojara sp.	7
5	AUG	STN_1	Mummichog	83

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-75 Degrees 17 Minutes 4.80 Decimal Seconds

8.2 Maximum Longitude

-75 Degrees 04 Minutes 18.60 Decimal Seconds

8.3 Minimum Latitude

38 Degrees 49 Minutes 54.60 Decimal Seconds

8.4 Maximum Latitude

38 Degrees 38 Minutes 33.00 Decimal Seconds

8.5 Name of area or region

Delaware and Maryland Coastal Bays

Stations were located in coastal bays along the East Coast of the United States in the States of Delaware and Maryland. Four major subsystems included Rehobeth Bay, Indian River Bay, Assawoman Bay and Chincoteague Bay. Areas of interest included Indian River, St. Martin River, Trappe Creek and artificial lagoons.

9. QUALITY CONTROL/ QUALITY ASSURANCE

9.1 Measurement Quality Objectives

Measurement quality objectives were the same for EMAP-Estuaries indicators and are outlined below:

Fish Community Composition	Accuracy Goal	Precision Goal	Completion Goal
Counting	10 %		90%
Taxonomic Identification	10 %		90%
Length determinations	+5 mm		90%

9.2 Quality Assurance/Control Methods

9.2.1 Sample Collection Quality Control

At least once during the field season, QA evaluation of each field crew will be performed by either the QA officer or a designee to insure compliance with prescribed protocols. Field crews will be re-trained whenever discrepancies are noted.

9.2.2 Sample Processing Quality Control

The quality of fish identification, enumerations and length measurements was assured principally through training field personnel prior to sampling. Fish identifications, enumerations and length measurements were confirmed by the QA officer or a designee during field audits. In addition, field crews saved representative specimens of each species identified in the field. These specimens were checked at the laboratory by qualified taxonomists. The overall accuracy goal for all fish identifications, enumerations and length measurements in the sampling season was 90%. If this goal was not met, corrective actions included increased emphasis on training and more rigorous testing of field crews prior to the next round of monthly fish sampling.

9.3 Quality Assessment Results

NA

9.4 Unassessed Errors

NA

10. DATA ACCESS

10.1 Data Access Procedures

Data can be requested from a contact under Section 10.3.
Data can be downloaded from the WWW site.

10.2 Data Access Restrictions

NA

10.3 Data Access Contact Persons

Dr. Frederick W. Kutz
U.S. Environmental Protection Agency
Region III
(410)305-2742 (Tel.)

10.4 Data Set Format

The data sets are in a fixed column format.

10.5 Information Concerning Anonymous FTP

Not accessible

10.6 Information Concerning WWW

Data can be downloaded from the WWW.

10.7 EMAP CD-ROM Containing the Data Set

Data not available on CD-ROM.

11. REFERENCES

K.S. Price, M. Timmons, C.C. Linder, J.F. Casey, S. Doctor, A. Wesche and J. Chaillou. 1993 Delaware Fish Seine Study and Comparison to Delaware and Maryland Historical Studies

in:

Chaillou, J.C., S.B. Weisberg, F.W. Kutz, T.E. DeMoss, L. Mangiaracina, R. Magnien, R. Eskin, J. Maxted, K. Price and J.K. Summers. 1996. Assessment of the Ecological Condition of the Delaware and Maryland Coastal Bays. U.S. Environmental Protection Agency. Prepared by Versar, Inc., Columbia, MD.

12. TABLE OF ACRONYMS

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